

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

Conditional Major Permit No F-04-041
FEDERAL-MOGUL CORPORATION
SCOTTSVILLE, KY.
May 23, 2005
SUKHENDU K MAJUMDAR, REVIEWER
Plant I.D. # 21-003-00009 (105-0160-0069)
Application Log # 53540
AI # 17

STATEMENT OF BASIS:

SOURCE DESCRIPTION:

Federal-Mogul at Scottsville, KY facility submitted a permit renewal application that was received by the Division on December 3, 2004. Federal-Mogul has asked that a federally enforceable permit renewal be written to keep their potential to emit particulate matter less than 10 microns (PM₁₀) under the major source threshold. Federal-Mogul has also requested federally enforceable limits to keep their potential to emit HAPs below major source levels. The source has major modifications to the existing equipment, which includes some equipment that was removed from the facility due to reduced demand of automobile brake lining and brake shoes. Some of the equipment was also relocated to the other facility of the Federal-Mogul in the country. Revised application reflecting all the changes for permit renewal was submitted on December 3, 2004 to fit the present permit requirements.

Federal-Mogul facility at Scottsville, KY currently manufactures brake lining and assembles products for automobile industry. Operation of the facility has been divided into three major areas:

- 1) Lining Process Rework: consists of core wash, debonding operation and deriveters/shot blaster;
- 2) Lining Manufacturing and Assembly: consists of core preparation, mixing and compounding, pre-cure and form-cure ovens, bonding and finishing;
- 3) Heavy Duty Truck Assembly Process: consists of riveting of new block brake pads onto new core;

COMMENTS:Type of control and efficiency

Emission Point	Type of Control	Control Efficiency
13 Two (2) Barium Compound Storage Silos	One (1) Bin Vent Filter (pulse jet baghouse)	0.997
06 Three (3) Compounders Mixers/ Finishing	American Air Filter, Dust Collector 6 @, 5,000 acfm	0.997
03 Afterburner, Add-on Controls to Debond Oven No.3	Shelter & Brink, No 97668, @ 3,600 acfm, primarily water vapor and CO. Some small amount of VOC	0.99
05 Natural Gas Fired Burn-off Furnace	Pollution Control Product Co. @ 3,600 acfm	0.99
09, 11 Adhesive Applicator Pre-Cure and Form-Cure	One (1) 3,000 acfm. Corbette S-01011 after burner	0.99
01,02 Four (4) Deriveters and Shot blaster	Dust Collector 2, Astrocell, Celebrity 2000, @ 5,000acfm with HEPA filters in series.	0.997
014 Five (5) Natural Gas Fired Air Heaters	No Control Equipment	0.000

Emission factors and their source

Emission Point	Emission Factor	Source
13 Two (2) Barium Compound Storage Silos	0.23 lb PM PM ₁₀ / Ton raw material	AP-42 Table 11.12-2
06 Three(3) Compounders Mixers/Finishing	196.3 lb PM PM ₁₀ / Ton raw material (See note 1.)	Engineering Estimates.

09,11 Adhesive Applicator Pre-Cure and Form Cure	0.8050 lb/ton VOC 6.5 lb/ton formaldehyde 36.7 lb/ton phenol 760.0 lb/ton MEK 0.0000657 lb/ton 1,3-butadiene 0.02 acrylonitrile 0.346 lb/ton Sulfuric acid	source & MSDS from their suppliers
10 Three (3) Bonding Ovens	56.1 lb/ton VOC 0.343lb/ton formaldehyde 1.93 lb/ton phenol 1.0 lb/ton Cresol 40.0 MEK lb/ton 0.02 acrylonitrile	AP-42: 1.4, source & MSDS from their suppliers
08 Finishing / Printing	260 lb PM PM ₁₀ / Ton raw material (See Note 1.)	% ground off
07 Parts Cleaners	2000 lb/ton VOC	100% emitted
14 Natural Gas Fired Space Heaters	See AP-42: 1.4	AP-42: 1.4

1. Individual HAP emission factors are determined by multiplying the amount of raw material released by the amount of each HAP on a weight basis in a raw material.

EMISSION AND OPERATING CAPS DESCRIPTION:

Particulate Control

Federal-Mogul has asked that a federally enforceable permit be written that requires particulate control. This keeps their potential to emit PM₁₀ under the major source threshold.

HAPS

Federal-Mogul has also requested federally enforceable limits to keep their potential to emit HAPs below major source levels. The HAP source emissions limitation is detailed as follows. HAPs are not emitted at the following emission points.

13 Three (3) Barium Compound Storage Silos
01,02 4 Deriveters and Shotblasters

Information on any changes that result in HAP emissions at these points shall be submitted for prior approval by the Division.

Emission Limitations:

The plant wide emissions of any single HAP shall not exceed 9 tons for any consecutive twelve (12) month period. The plant wide emissions of any combination of HAPs shall not exceed 22.5 tons for any consecutive twelve (12) month period. In addition, the plant wide VOC emissions shall not exceed 90 tons per year. The source has elected to accept limits to preclude the requirement of a Title V permit.

Compliance Demonstration Method:

For the Brake Lining Process Area the emission factor in units of pounds emitted per ton total raw material processed shall be determined for each HAP and total VOCs emitted at each emission point according to the following formulas.

1) Emission Factor for organic HAPs or VOCs (lb emitted/ton of raw material processed) = EF =
$$\frac{[\text{Compound in Raw Material (lb/yr)}] \times [\text{Percent Released from Raw Material}] \times [1 - [\text{Control Efficiency}/100]]}{2000 \text{ lb/ton} \times [\text{Total Quantity of Raw Materials Processed (lb/yr)}]}$$

2) Emission factor for Phenol = 0.06 lb emitted/ton of total raw material processed (based on stack test)

For the three (3) Bonding Ovens the emission factor is based on the destruction efficiency of the afterburners and the expected amount of VOCs released from the used cores.

For all other emission points, the emission factors were solely based on material safety data sheet and air pollution control information, where applicable.

The amount of HAP and VOCs contained in any material that is used shall be determined from a material safety data sheet. For any material where the MSDS lists a range for the weight fraction of a HAP contained in a material, the highest value shall be used. Under circumstances such that a value for EF cannot be determined from a MSDS or an alternate method of determining an EF is desired, an alternative method must be approved by the Division. The values for EF for each emission point are listed in Table D.1 thru Table D.6. If at any time due to a changing of materials used or for any other reason, additional HAP emissions are expected calculations and MSDS shall be submitted to the Division for prior approval.

Table D.1

Emission point	EF
04 Dip Coating System No. 1	0.11 lb/gallon (VOCs)(Based on MSDS) 0.6 lb/ton (Formaldehyde)(Based on MSDS and Vendor Data)
06 Mixing/Finishing	See Table D.2
08 Lining Pre-Cure/ 11 Form Cure Ovens	See Table D.3
09 Adhesive Pre-Cure Ovens	See Table D.4
10 Bonding Ovens	See Table D.5

07 Printing Inks, Cleaning Compound	See Table D.6 (inks)
	2000 lb/ton (MSDS)

Table D.2 - 003 Mixing/Finishing

HAP	EF (pounds/ton)
Manganese Compounds	(*) 0.173
Phosphorus	(*) 0.014

(*)Pounds/ton is pounds emitted per ton of total quantity of raw materials processed. Based on MSDS, and eng. judgment.

Table D.3 – 005 Lining Pre-Cure / 008 Form Cure Ovens

HAP/VOCs	EF (pounds/ton)
Acrylonitrile	0.00021(*)
Butadiene	0.0000011(*)
Phenol	0.06(**)
VOCs	0.805(*)

(*)Pounds/ton is pounds emitted per ton of total quantity of raw materials processed
Based on MSDS and eng. judgment.

(**)Based on stack test results.

Table D.4 – 006 Adhesive Pre-Cure Ovens

HAP/VOCs	EF
MEK	760 lb/ton(*)
Phenol	36.7 lb/ton(*)
Formaldehyde	6.5 lb/ton(*)
Cresol	19 lb/ton(*)
Acrylonitrile	0.02 lb/ton(*)
VOCs	1066.33 lb/ton

(*)Pounds/ton is pounds emitted per ton of total quantity of raw materials processed.
Based on MSDS, and vendor data.

Table D.5 – 007 Bonding Ovens

HAP/VOCs	EF
MEK	40 lb/ton(*)
Phenol	1.93 lb/ton(*)
Formaldehyde	0.343 lb/ton(*)
Cresol	1.0 lb/ton(*)
Acrylonitrile	0.001 lb/ton(*)
VOCs	56.1 lb/ton

(*)Pounds/ton is pounds emitted per ton of total quantity of raw materials processed.
Based on MSDS and vendor data.

Table D.6 – 004 Printing Inks

Lining Edge Code Printing		Video Jet Ink	
HAP/VOCs	EF	HAP/VOCs	EF
VOCs	7.5 lb/gal(*)	HAPs	6.67 lb/gal(***)
2-Butoxyethanol	7.5 lb/gal(*)	Methanol	3.67 lb/gal(***)
VOCs	7.6 lb/gal(**)	MEK	3.67 lb/gal(***)
N/A	N/A	PGME	0.2 lb/gal(***)
N/A	N/A	VOCs	7.6 lb/gal(****)

Note: Pounds/gallon is pounds emitted per gallon of quantity of raw materials processed.
Based on MSDS.

(*)Lining Edge Code make-up fluid.

(**)Lining Edge Code printing ink.

(***)Video Jet make-up fluid.

(****)Video Jet printing ink.

Monthly Total for each HAP/VOCs

The following formula shall be used to determine the emissions of each HAP at each emission point and from each material used unless an alternate demonstration method is approved by the Division.

$$\text{Monthly Individual HAP Emissions} = \sum_{n=1}^N \text{M} \times \text{Emission Factor}$$

Where the monthly individual HAP emissions are summed to include each material or release point for an individual HAP. M is the monthly amount of a material used and Emission Factor is the emission factor as listed in Tables D.1 thru D.6 for a particular HAP in the material or at a point. The control efficiency, if applicable, has been incorporated in the emission factor EF. The value used as control efficiency shall be the value listed in Section B of this permit. Any different or

additional control efficiencies that are used must be prior approved by the Division.

Consecutive Twelve (12) Month Total for each HAP and VOC Emission for each Emission Point
The monthly total for an individual HAP/VOCs should then be summed according to the following equation.

Total Individual HAP Emissions = Sum of Monthly Individual HAP Emissions

Total Individual VOC Emissions = Sum of Monthly Individual VOC Emissions

Where the individual HAP/VOC emissions are summed over twelve (12) months.

Monthly Total for Combined HAPs/VOCs

The following formula shall be used to determine the monthly total for combined HAP/VOC emissions.

Monthly Combined HAP Emissions = Sum of Monthly Individual HAP Emissions

Monthly Combined VOC Emissions = Sum of Monthly Individual VOC Emissions

Where all HAP/VOC emissions are summed for an individual month.

Consecutive Twelve (12) Month Total for Combined HAPs/VOC

Total Combined HAP Emissions = Sum of Monthly Combined HAP Emissions

Total Combined VOC Emissions = Sum of Monthly Combined VOC Emissions

Where monthly combined HAP/VOC emissions are summed over twelve (12) months.

Specific Recordkeeping Requirements:

The following records shall be maintained.

- 1) Monthly usage records for all materials containing HAPs/VOCs.
- 2) Monthly calculated HAP/VOC emissions for each HAP and total VOCs.
- 3) Consecutive twelve (12) month emission totals for each HAP.
- 4) Monthly calculated combined HAP and VOC emissions.
- 5) Consecutive twelve (12) month emission totals for combined HAPs and VOCs.

Specific Reporting Requirements:

A report of the consecutive twelve (12) month totals of VOC and HAP emissions for each HAP and combined HAPs and VOCs shall be submitted every six months in accordance with Section F. 5. and F. 7. e. A report of any exceedance of the HAP and VOC emissions limitations shall be submitted within thirty days of when the exceedance is determined.

PM₁₀

Specific Monitoring Requirements:

The permittee shall visually check for emissions from each baghouse and/or filter discharge stack on a daily basis and record whether or not there are visible emissions in an operating log.

The permittee shall inspect the condition of the bags in each baghouse and/or filters in each filter unit at least once every six months.

Specific Recordkeeping Requirements:

The permittee shall maintain a written log of the daily pressure drop for each baghouse and/or filter and make sure log available for inspection by Division personnel upon request. The log shall indicate the name or initials of the person performing the pressure drop monitoring.

Visual checks, inspection results, bag and/or filter replacement, and operator training shall be recorded in an operating log which shall be kept current at all times.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.

Amount and Type of Pollution

The potential to emit particulate matter, sulfur oxides, nitrogen oxides, volatile organic compounds and carbon monoxide is less than the major source threshold of 100 tons per year for each pollutant.

This facility emits the following hazardous air pollutants: manganese, phenol, 1,3-butadiene, acrylonitrile, formaldehyde, methyl ethyl ketone, methyl alcohol, cadmium and chromium. Phenol emissions are limited to 9.5 tons per consecutive twelve months. Emissions of the other hazardous air pollutants are limited to 9 tons per consecutive twelve months. Total emissions of all hazardous air pollutants are limited to 22.5 tons per consecutive twelve months.

Although 401 KAR 63:022 *New or modified sources emitting toxic air pollutants* was repealed on January 19, 1999, it would apply to barium emissions if it were still in existence today. Federal-Mogul submitted air dispersion modeling for barium and phenol. If 401 KAR 63:022 still existed, the calculated allowables for barium and phenol would be greater than the facilities potential to emit these pollutants. Additional methods of risk assessment were also considered and it was determined

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that the risk to human health and the environment is within acceptable levels. No changes were made to the draft permit as a result of comments related to emissions.